

Title (en)

Method for producing a powder of a metal alloy

Title (de)

Verfahren zur Herstellung eines Pulvers einer Metalllegierung

Title (fr)

Procédé de fabrication d'une poudre d'un alliage métallique

Publication

EP 2689873 A1 20140129 (DE)

Application

EP 13170994 A 20130607

Priority

AT 3042012 U 20120725

Abstract (en)

The process comprises melting and refining a first metal and a further metal at a melting temperature of 600[deg] C, and sputtering the melt by a primary gas having a first gas flow and a secondary gas having a second gas flow. The melt is cooled and is solidified to a powder during sputtering. A flow of material (1) is cooled and solidified during sputtering, and is affected by gravity. The method further comprises introducing the melt to a heatable container (2) or continuously supplying to the heatable container through a pre-melting alloying furnace of a pump and/or channel system. The process comprises melting and refining a first metal and a further metal at a melting temperature of 600[deg] C, and sputtering the melt by a primary gas having a first gas flow and a secondary gas having a second gas flow. The melt is cooled and is solidified to a powder during sputtering. A flow of material (1) is cooled and solidified during sputtering, and is affected by gravity. The method further comprises introducing the melt to a heatable container (2) or continuously supplying to the heatable container through a pre-melting alloying furnace of a pump and/or channel system before the sputtering, separating the powder using a classification device such as an ultrasonic screening machine into a coarse material and fine material to remove coarse material having a grain diameter of 1000 mu m, and recycling the coarse material to the melt. The heatable container comprises, at its lower end, a nozzle system (3) and supply lines (4,5) for the primary gas and secondary gas. The flow of material is cooled by a water-cooling spray tower. The primary gas and the secondary gas are heated at a temperature of 400[deg] C. The secondary gas flow is less than the first gas flow, and has a flow rate of 90 kg/h. The first gas flow has a flow rate of 700 kg/h. The primary gas and/or secondary gas is inert gas to prevent oxidation. The powder is further separated by a cyclone into the fine material and coarse material, where all grains of fine material have diameters of less than 1000 mu m. The grains (90%) of the fine material have diameters of 10-1000 mu m, and 50% of the grains of the fine material have diameter of 3-800 mu m. The powder grains have a spherical, acicular or spattered shape.

Abstract (de)

Verfahren zur Herstellung eines Pulvers einer Metalllegierung aus einem ersten Metall (18) und mindestens einem weiteren Metall (19a, 19b) für den Einsatz als Pigmente eines Korrosionsschutz-Primers für Metalle. Um eine den Korrosionsschutz fördernde definierte Größenverteilung der Körner des Pulvers zu erzielen, ist es erfindungsgemäß vorgesehen, dass das Verfahren die folgenden Schritte umfasst: - Schmelzen und Legieren des ersten Metalls (18) mit dem mindestens einen weiteren Metall (19a, 19b); - Zerstäuben der Schmelze (20) mittels eines Primärgases (6), welches einen ersten Gasfluss aufweist, und eines Sekundärgases (7), welches einen zweiten Gasfluss aufweist, wobei die Schmelze (20) während des Zerstäubens abkühlt und zu einem Pulver (21) erstarrt und wobei ein Materialfluss (1) während des Zerstäubens und Erstarrens erfolgt.

IPC 8 full level

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CPC (source: EP)

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Citation (applicant)

EP 2016138 B1 20100714 - VOESTALPINE STAHL GMBH [AT]

Citation (search report)

- [X] US 2004045404 A1 20040311 - OYAMA AKIRA [JP], et al
- [I] JP H10280012 A 19981020 - NIPPON STEEL CORP, et al
- [A] CN 102011028 A 20110413 - NINGBO SONLUK ENERGY TECHNOLOGY CO LTD
- [AD] EP 2016138 B1 20100714 - VOESTALPINE STAHL GMBH [AT]

Cited by

EP3725439A3; CN109530709A; CN113600820A; EP3725439A2

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